

Remarks

Claim 1 has been amended to incorporate the features of claim 6. Claims 4 and 5 have been canceled without prejudice. Additionally, claim 6 has been canceled without prejudice, the subject matter therein being incorporated into claim 1. Claims 1-3 and 7-12 have been amended for various grammatical reasons.

Applicant understands that Applicant cannot, as a matter of right, amend any finally rejected claim, add new claims, or reinstate previously canceled claims after a final Office Action. However, according to MPEP §714.13, amendments that cancel claims, adopt Examiner suggestions, remove issues for appeal, or in some other way require only a cursory review by the Examiner may be considered. In this regard, Applicant submits that claim 1 has been amended to incorporate features from pending claims. The claims have also been amended for various grammatical reasons. Accordingly, Applicant respectfully submits that only a cursory review of the cited references is necessary by the Examiner to determine the patentability of amended independent claim 1. In addition, Applicant respectfully submits that these amendments are proper despite the finality of the outstanding Office Action because the amendments place the application in condition for allowance and/or place the application in better form for appeal. No question of new matter arises and entry of the above-requested amendments is respectfully requested.

Claims 1-3 and 7-12 are before the Examiner for consideration.

Rejection Under 35 U.S.C. §102(b)

Claims 1-3 and 6-8 have been rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,186,999 to Brambach ("Brambach"). In particular, it is asserted that Brambach teaches a process for manufacturing a molded part where the molded part is obtained by molding at least one composite sandwich. It is also asserted that the sandwich incorporates an expansion agent that reacts during molding.

Initially, Applicant submits that claim 6 has been canceled without prejudice, thereby rendering the rejection of claim 6 moot.

In response to the rejection of the remaining claims, Applicant respectfully directs the Examiner's attention to the amendments made to claim 1 and submits that claim 1, as amended, defines a process for manufacturing a molded part that is not taught (or suggested) by Brambach. Applicant respectfully submits that there is no teaching (or suggestion) within Brambach of molding at least one composite sandwich material that includes at least one core

and at least one composite skin on the core into a molded composite part as claimed in claim 1. Brambach teaches the formation of a sheet-like sandwich material formed of a core material sandwiched between two reinforced top layers. (*See e.g.*, column 1, lines 58-61). A local reinforcement may be injected under pressure through one of the top layers into the core layer. (*See, e.g.*, column 2, lines 14-21). Brambach teaches various methods of injecting the reinforcement into the core (*see, e.g.*, column 4, lines 38-64), but does not teach (or suggest) any method for molding the sandwich material to form a molded composite part as required in claim 1.

In the outstanding Office Action, it is asserted that Brambach teaches “an injection molding process in which the core is directly injected in an injection molding machine in a mold described as a back support to control the positioning of the material in order to bond the core to all the layers”. (*See* page 2, paragraph 4 of the Office Action dated December 24, 2008). Assuming, *arguendo*, that this disclosure is considered to be a molding process as asserted by the Examiner, it does not describe molding the sandwich material into a molded composite article. Rather, this disclosure clearly describes injecting the plastic reinforcement material into the core. (*See* column 4, line 63 and column 5, lines 2-3 as cited by the Examiner in the outstanding Office Action).¹ Indeed, Brambach is silent with respect to any teaching or suggestion of molding a sandwich material into a molded composite part as required by claim 1.

Regarding the assertion that the back support is a mold, Applicant respectfully disagrees. The back support described by Brambach is merely to prevent the plastic material from being forced through the sandwich structure when high pressures are used to insert the plastic reinforcing material into the core. (*See* column 5, lines 10-14). The support provides no molding function. As taught by Brambach, the plastic that is injected into the core material hardens after injection to provide for a local reinforcement to enable auxiliary means to be secured. (*See, e.g.*, column 1, lines 46-49 and column 2, lines 14-27).

It is further asserted in the outstanding Office Action that Brambach teaches a process for forming a sheet-like material (column 1, line 12) that is obtained by molding at least one composite sandwich (column 1, lines 58-53). (*See* paragraph 5 of the Office Action dated December 24, 2008). It is respectfully submitted that at column 1, line 12, Brambach teaches that one example of a sheet-like material is a sandwich structure. Further, the teaching at

¹ *See* paragraph 4 of the Office Action dated December 24, 2008.

column 1, lines 58-63 simply states one object of the invention, namely, to provide a sheet-like material provided with a local reinforcement. There is simply no teaching or suggestion in these cited passages, or anywhere within Brambach, of molding a sandwich material in a mold to form a molded composite part. As is clearly taught by Brambach, the invention relates to a sheet-like sandwich material with a local reinforcement and to a method of providing a local reinforcement in a sheet-like material, such as a sandwich structure. (See column 1, lines 5-11). Nowhere in Brambach is there any suggestion of a molded composite part made by molding a sandwich structure.

Additionally, Applicant respectfully submits that Brambach does not teach or suggest an expansion agent that reacts during molding, particularly an expansion agent that presses the composite skin against a wall of the mold as claimed in claim 1. It is asserted that the claimed expansion agent is disclosed at column 3, lines 36-39. (See paragraph 5 of the Office Action dated December 24, 2008). Applicant respectfully disagrees. This passage cited by the Examiner teaches the in situ formation (generation) of a foamed core material within the sandwich structure. The “expandable material” recited in line 38 of column 3 of Brambach is merely the material that expands to form the foamed core. It is not an expandable material located in the sandwich structure that reacts in a mold to press the composite skin against a wall of the mold. For instance, in the presently claimed invention, the expandable material reacts in the mold to push the skin of the sandwich structure against the walls of the mold. (See, e.g., page 8, lines 28-33 of the specification). Thus, the expandable material in the sandwich structure reacts during molding. The asserted “expandable material” in Brambach is expended prior to any possible molding of the sandwich material as the “expandable material” is needed to form the foam core of the sandwich structure. Accordingly, the “expandable material” of Brambach is not, and cannot be, the same as the expandable material recited in claim 1.

In order for a reference to be anticipatory, each and every limitation of the claimed invention must be found within the four corners of the cited reference. Because Brambach does not teach (or suggest) a process for manufacturing a molded composite part that comprises molding at least one composite sandwich material including at least one core and at least one composite skin on the core into a composite part in a mold to form a molded composite part, where the sandwich material has incorporated therein at least one expansion agent that reacts during the molding step to press the composite skin against a wall of the mold as required by claim 1, Applicant submits that Brambach is not an anticipatory

reference. Accordingly, Applicant submits that independent claim 1, and all claims dependent therefrom, are not anticipated by (or obvious over) Brambach and respectfully requests reconsideration and withdrawal of this rejection.

Rejection under 35 U.S.C. §103(a)

Claims 9 and 12 have been rejected under 35 U.S.C. §103(a) as being obvious over U.S. Patent No. 5,186,999 to Brambach ("Brambach") in view of U.S. Patent No. 6,692,681 to Lunde ("Lunde").

With respect to claim 9, the Examiner admits that Brambach fails to teach reacting the expansion agent by heating the expansion agent in a mold. In this regard, Lunde is cited for assertedly teaching reacting an expansion agent by heating the expansion agent in a mold. The Examiner concludes that it would have been obvious to one of skill in the art to use the heated mold of Lunde to expand the agent of Brambach for the benefit of controlling the expansion of the skin against the mold.

Regarding claim 12, the Examiner admits that Brambach does not teach or suggest the claimed range of the composite thickness. In this regard, Lunde is cited for assertedly teaching that the thickness of the skin is less than 10% of the thickness of the composite sandwich. The Examiner concludes that it would have been obvious to one of skill in the art to use the dimensions taught by Lunde in the method of Brambach for the benefit of controlling the reinforcement or rigidity of the product by adjusting the skin to the core size ratio.

In response to this rejection, Applicant respectfully directs the Examiner's attention to the amendments made to claim 1 and to the arguments presented above with respect to the rejection of claims 1-3 and 6-8 under 35 U.S.C. §102(b) over Brambach and submits that claim 1, as amended, defines a process for manufacturing a molded part that is not taught or suggested by Brambach and Lunde.

As discussed in detail above, Applicant submits that Brambach does not teach or suggest molding at least one composite sandwich material that includes at least one core and at least one composite skin on the core into a molded composite part where the sandwich material has incorporated therein at least one expansion agent that reacts during the molding step to press the composite skin against a wall of the mold as claimed in claim 1.

Brambach teaches the formation of a sheet-like sandwich material formed of a core material sandwiched between two reinforced top layers. (*See e.g.*, column 1, lines 58-61). A

local reinforcement may be injected under pressure through one of the top layers into the core layer. (*See, e.g.*, column 2, lines 14-21). Brambach teaches various methods of injecting the reinforcement into the core (*see, e.g.*, column 4, lines 38-64), but does not teach or suggest any method for molding the sandwich material to form a molded composite part as required in claim 1. Indeed, Brambach is silent with respect to any teaching or suggestion of molding a sandwich material into a composite part.

As discussed previously, the Examiner asserts that Brambach teaches “an injection molding process in which the core is directly injected in an injection molding machine in a mold described as a back support to control the positioning of the material in order to bond the core to all the layers”. (*See* page 2, paragraph 4 of the Office Action dated December 24, 2008). Assuming, *arguendo*, that this disclosure is considered to be a molding process as asserted by the Examiner, it still does not describe molding the sandwich material into a molded composite article. It is respectfully submitted that Brambach merely teaches injecting the plastic reinforcement material into the core.

Regarding the assertion that the back support is a mold, Applicant respectfully disagrees. The back support described by Brambach is merely to prevent the plastic material from being forced through the sheet when high pressures are used to insert the plastic reinforcing material. (*See* column 5, lines 10-14). The support provides no molding function whatsoever. As taught by Brambach, the plastic support that is injected into the core material hardens after injection to provide for a local reinforcement to enable auxiliary means to be secured. (*See, e.g.*, column 1, lines 46-49 and column 2, lines 14-27).

It is further asserted in the outstanding Office Action that Brambach teaches a process for forming a sheet-like material (column 1, line 12) that is obtained by molding at least one composite sandwich (column 1, lines 58-53). (*See* paragraph 5 of the Office Action dated December 24, 2008). It is respectfully submitted that at column 1, line 12, Brambach teaches that one example of a sheet-like material is a sandwich structure. Further, the teaching at column 1, lines 58-63 simply states one object of the invention, namely, to provide a sheet-like material provided with a local reinforcement. There is simply no teaching or suggestion in this cited passage, or anywhere within Brambach, of molding a sandwich material in a mold to form a molded composite part. As is clearly taught by Brambach, the invention relates to a sheet-like sandwich material with a local reinforcement and to a method of providing a local reinforcement in a sheet-like material, such as a sandwich structure. (*See*

column 1, lines 5-11). Nowhere in Brambach is there any suggestion of a molded composite part made by molding a sandwich structure.

Additionally, Applicant respectfully submits that Brambach does not teach or suggest an expanding agent that reacts during the molding step, particularly an expanding agent that presses the composite skin against a wall of the mold as claimed in claim 1. It is asserted that the claimed expansion agent is disclosed at column 3, lines 36-39. (See paragraph 5 of the Office Action dated December 24, 2008). Applicant respectfully disagrees. This passage cited by the Examiner teaches the *in situ* formation (generation) of a foamed core material within the sandwich structure. The “expandable material” recited in line 38 of column 3 of Brambach is merely the material that expands to form the foamed core. It is not an expandable material located in the sandwich structure that reacts in a mold to press the composite skin against a wall of the mold. For instance, in the presently claimed invention, the expandable material reacts in the mold to push the skin of the sandwich structure against the walls of the mold. (See, e.g., page 8, lines 28-33 of the specification). Thus, the expandable material in the sandwich structure reacts during molding. The asserted “expandable material” in Brambach is expended prior to any possible molding of the sandwich material as the “expandable material” is needed to form the foam core of the sandwich structure. Accordingly, the “expandable material” of Brambach is not, and cannot be, the same as the expandable material recited in claim 1.

It is respectfully submitted that Lunde cannot make up for the deficiencies of Brambach, namely (1) molding at least one composite sandwich material that includes at least one core and at least one composite skin on the core into a molded composite part and (2) a sandwich material that has incorporated therein at least one expansion agent that reacts during the molding step to press the composite skin against a wall of the mold.

Accordingly, Applicant respectfully submits that the combination of Brambach and Lunde would not result in the process claimed in claim 1. Thus, Applicant respectfully submits that independent claim 1, and all claims dependent therefrom, are non-anticipatory, non-obvious, and patentable.

Applicant also submits that there is no motivation for one of skill in the art to arrive at the process for manufacturing a molded part claimed in claim 1 based on the disclosures of Brambach and Lunde. To establish a *prima facie* case of obviousness, there must be some motivation, either within the reference or in the knowledge of those of skill in the art, to modify the reference or combine the references’ teachings, there must be a reasonable

expectation of success, and the prior art references must meet all of the claim limitations. (See, e.g., *Manual of Patent Examining Procedure*, Patent Publishing, LLC, Eighth Ed., Rev. 6, August 2007, §2142). It is respectfully submitted that one of ordinary skill in the art would have no motivation to arrive at a process for manufacturing a molded part that includes molding at least one composite sandwich material that includes at least one core and at least one composite skin on the core into a molded composite part where the sandwich material has incorporated therein at least one expansion agent that reacts during the molding step to press the composite skin against a wall of the mold based on the disclosures of Brambach because Brambach does not teach or suggest (1) molding at least one composite sandwich material that includes at least one core and at least one composite skin on the core into a molded composite part and (2) a sandwich material that has incorporated therein at least one expansion agent that reacts during the molding step to press the composite skin against a wall of the mold. As discussed above, Lunde simply cannot make up for the deficiencies of Brambach. As a result, one of ordinary skill in the art would have no motivation to arrive at the inventive process claimed in claim 1 based on the teachings of Brambach and Lunde. It is respectfully submitted that without some teaching or suggestion, there can be no motivation, and without motivation, there can be no *prima facie* case of obviousness.

Also, as discussed above, Brambach and Lunde, alone or in combination, neither teaches nor suggests (1) molding at least one composite sandwich material that includes at least one core and at least one composite skin on the core into a molded composite part and (2) a sandwich material that has incorporated therein at least one expansion agent that reacts during the molding step to press the composite skin against a wall of the mold. Therefore, Applicant respectfully submits that Brambach and Lunde fail to teach all of the claim limitations set forth in claim 1. Accordingly, it is submitted that a *prima facie* case of obviousness has not been established for this additional reason.

In view of the above, it is respectfully submitted that independent claim 1 is not taught or suggested by Brambach and Lunde, and that claim 1 is therefore non-obvious and patentable. With respect to dependent claims 9 and 12, Applicant submits that because independent claim 1 is not taught or suggested by Brambach and Lunde, and claims 9 and 12 are dependent upon claim 1 and contain the same elements as claim 1, dependent claims 9 and 12 are also not taught or suggested by Brambach and Lunde.

In light of the above, Applicant submits that claims 9 and 12 are not obvious over Brambach in view of Lunde and respectfully requests that this rejection be reconsidered and withdrawn.

Rejection Under 35 U.S.C. §103(a)

Claims 10 and 11 been rejected under 35 U.S.C. §103(a) as being unpatentable over under 35 U.S.C. §103(a) as being obvious over U.S. Patent No. 5,186,999 to Brambach ("Brambach") in view of U.S. Patent No. 5,225,450 to Beukers ("Beukers").

With respect to claim 10, the Examiner admits that Brambach fails to teach the identity of the expansion agent. In this regard, Beukers is cited for assertedly teaching an expansion agent selected from water, azodicarbonamide, sulphonyl hydrazide, and a sodium bicarbonate/citric acid mixture. The Examiner concludes that it would have been obvious to one of skill in the art to combine the selection of expansion agents taught by Beukers in the method of Brambach because the EPO application equivalent is cited as being incorporated by reference.

Regarding the rejection of claim 11, the Examiner admits that Brambach does not teach that the expansion agent represents at least 0.5% by weight of the core. Beukers is cited for assertedly teaching that the upper limit of the acceptable range for the expansion agent is dependent upon the combination of materials. The Examiner concludes that it would have been obvious to one of skill in the art to used the claimed range of expansion agent because it is a result effective variable.

In response to this rejection, Applicant respectfully directs the Examiner's attention to claim 1 and to the arguments presented above with respect to the rejection of claims 9 and 12 under 35 U.S.C. §103(a) over Brambach and Lunde and submits that claim 1 defines a process for manufacturing a molded part that is not taught or suggested by Brambach (and Lunde). As discussed in detail above, Brambach does not teach or suggest (1) molding at least one composite sandwich material that includes at least one core and at least one composite skin on the core into a molded composite part and (2) a sandwich material that has incorporated therein at least one expansion agent that reacts during the molding step to press the composite skin against a wall of the mold as required by claim 1.

Applicant respectfully submits that the teachings of Beukers do not add to the Examiner's rejection so as to make claim 1 unpatentable. Even with the addition of the teachings of Beukers, Brambach still does not teach or suggest a process for manufacturing a

molded part that includes molding at least one composite sandwich material that includes at least one core and at least one composite skin on the core into a molded composite part where the sandwich material has incorporated therein at least one expansion agent that reacts during the molding step to press the composite skin against a wall of the mold. It is respectfully submitted that Beukers adds nothing to the teachings of Beukers with respect to molding at least one composite sandwich material that includes at least one core and at least one composite skin on the core into a molded composite part or a sandwich material that has incorporated therein at least one expansion agent that reacts during the molding step to press the composite skin against a wall of the mold. As such, it is respectfully submitted that the combination of Brambach and Beukers does not teach or suggest the process for manufacturing a molded part recited in claim 1. Because claims 10 and 11 are dependent upon claim 1, which, as discussed in detail above, is not taught or suggested by Brambach and Beukers, Applicant submits that claims 10 and 11 are also not taught or suggested by Brambach and Beukers.

In view of the above, Applicant submits that claims 10 and 11 are not obvious over Brambach in view of Beukers and respectfully requests reconsideration and withdrawal of this rejection.

Conclusion

In light of the above, Applicant believes that this application is now in condition for allowance and therefore requests favorable consideration.

If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

If necessary, the Commissioner is hereby authorized to charge payment or credit any overpayment to Deposit Account No. 50-0568 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

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